

The African Organisation for Standardisation

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ARS 923 (2012) (English): Fresh chinese
cabbages -- Specification



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Fresh Chinese cabbages — Specification



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Introduction

Leafy Chinese cabbage is grown and traded for its sweet, succulent nutritious stalks. In structure, Chinese cabbage resembles collards and could be described as a non-heading cabbage (Acephala group). It is basically a small plant which grows upright from the ground with smooth white romaine lettuce like stalks which spread in the end to fine, glossy green oval or round leaves. Fully grown up plant may reach about 30 – 45 cm in length.

Like other brasisca family vegetables, Chinese cabbage contains certain anti-oxidant plant chemicals like thiocyanates, indole-3-carbinol, lutein, zeaxanthin, sulforaphane and isothiocyanates along with dietary fibre and vitamins.

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Fresh Chinese cabbages — Specification

1 Scope

This standard applies to chinese cabbages of varieties (cultivars) grown from *Brassica pekinensis* Rupr. to be supplied fresh to the consumer, chinese cabbages for industrial processing being excluded.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Prepackaged foods — Labelling*

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 44, *Recommended international code of practice for the packaging and transport of tropical fresh fruits and vegetables*

CAC/RCP 53, *Code of hygienic practice for fresh fruits and vegetables*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

ISO 874, *Fresh fruits and vegetables — Sampling*

ISO 2169, *Fruits and vegetables — Physical conditions in cold stores — Definitions and measurement*

ISO 6561-1, *Fruits, vegetables and derived products — Determination of cadmium content — Part 1: Method using graphite furnace atomic absorption spectrometry*

ISO 6561-2, *Fruits, vegetables and derived products — Determination of cadmium content — Part 2: Method using flame atomic absorption spectrometry*

ISO 6633, *Fruits, vegetables and derived products — Determination of lead content — Flameless atomic absorption spectrometric method*

ISO 6634, *Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method*

ISO 6637, *Fruits, vegetables and derived products — Determination of mercury content — Flameless atomic absorption method*

ISO 7563, *Fresh fruits and vegetables — Vocabulary*

ISO 7952, *Fruits, vegetables and derived products — Determination of copper content — Method using flame atomic absorption spectrometry*

ISO 9526, *Fruits, vegetables and derived products — Determination of iron content by flame atomic absorption spectrometry*

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ISO 17239, *Fruits, vegetables and derived products — Determination of arsenic content — Method using hydride generation atomic absorption spectrometry*

3 Definitions

For the purposes of this standard, the terms and definitions in ISO 7563, and the following terms and definitions apply.

3.1

similar varietal characteristics

the cabbage in each container shall have the same general characteristics

3.2

reasonable solidity

fairly firm and not soft or puffy

3.3

puffy

the heads are very light in weight in comparison to size, or have excessive air spaces in the central portion. They normally feel firm at time of harvesting but often soften quickly. They are known as "Balloon Heads" in certain sections.

3.4

seed-stems

those heads which have seed stalks showing or in which the formation of seed stalks has plainly begun

3.5

damage

any injury or defect which materially affects the appearance, or the edible or shipping quality. Worm injury on the outer head leaves or wrapper leaves which materially affects the appearance of the head or worm holes which extend deeply into the compact portion of the head shall be considered as damage.

3.6

well trimmed

the head shall not have more than four wrapper leaves

3.7

fairly well trimmed

the head shall not have more than seven wrapper leaves

3.8

wrapper leaves

leaves which do not enfold the head fairly tightly more than two-thirds the distance from the base to the top

3.9

reasonably firm

the head is not soft and is of reasonable weight for its size but may have considerable open spaces between the leaves in the lower portion of the head

3.10

serious damage

any injury or defect which seriously affects the appearance, or the edible or shipping quality. Cabbage which is affected by soft rot or which is seriously puffy, badly burst, or seriously injured by seedstems, discoloration, freezing, disease, insects, mechanical or other means shall be considered as seriously damaged. Worm injury on the outer head leaves or wrapper leaves which seriously affects the appearance of the heads, or worm holes which seriously affect the compact portion of the head shall be regarded as serious damage.

4 Provisions concerning quality

4.1 General

The purpose of the standard is to define the quality requirements of chinese cabbages of the long type and the round type at the export control stage after preparation and packaging.

4.2 Minimum requirements

4.2.1 In all classes, subject to the special provisions for each class and the tolerances allowed, the chinese cabbages must be:

- (a) intact; however some of the outer leaves may be removed and for the long type the ends of leaves may be cut, provided that the heads are wrapped
- (b) sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- (c) clean and trimmed, i.e. practically free of all earth-soiled leaves, and practically free from any visible foreign matter
- (d) fresh in appearance
- (e) practically free from pests
- (f) practically free from damage caused by pests
- (g) not running to seed
- (h) free of abnormal external moisture
- (i) free of any foreign smell and/or taste.

4.2.2 The butt should be cut slightly below the lowest point of leaf growth, but the leaves should remain firmly attached. The cut should be clean.

A slight colouration of the vascular bundles of the cut surface due to storage is admitted.

4.2.3 The development and condition of the Chinese cabbages must be such as to enable them:

- (a) to withstand transport and handling, and
- (b) to arrive in satisfactory condition at the place of destination.

4.3 Classification

Chinese cabbages of the long type and the round type are classified into two classes defined below:

4.3.1 Class I

Chinese cabbages in this class must be of good quality. They must be characteristic of the variety and/or commercial type.

They must be:

- well formed
- compact, the leaves must be closely attached according to the variety

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- free from damage due to frost
- practically free of physical injury; small cracks in the outer leaves are allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

The total length of the floral stem should not exceed one-third of the length of the packed head.

4.3.2 Class II

This class includes chinese cabbages which do not qualify for inclusion in Class I, but satisfy the minimum requirements specified above.

The following defects may be allowed provided the chinese cabbages retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape
- defects in colouring
- reasonably compact heads, the leaves may be less closely attached
- slight damage due to frost
- slight bruising of and cracks in the outer leaves
- traces of internal necrosis.

The total length of the floral stem should not exceed one-half of the length of the packed head.

5 Provisions concerning sizing

Size is determined by the weight of head.

For chinese cabbages, regardless of their shape classified in Classes I and II, the minimum weight per head must be 350 g.

For chinese cabbages classified in Class I and in each package, the heaviest head must not be more than 1.5 times the weight of the lightest head.

For chinese cabbages classified in Class II and in each package the heaviest head must not be more than twice the weight of the lightest head.

6 Provisions concerning tolerances

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated.

6.1 Quality tolerances

6.1.1 Class I

10 per cent by number or weight of heads not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

6.1.2 Class II

10 per cent by number or weight of heads satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering them unfit for consumption.

6.2 Size Tolerances

For all classes: 10 per cent by number or weight of heads not satisfying the requirements as regards:

- uniformity
- minimum weight, however, no head may weigh less than 250 g ¹.

7 Provisions concerning presentation

7.1 Uniformity

The contents of each package must be uniform and contain only Chinese cabbages of the same origin, variety, quality and size.

Chinese cabbages of Class I must be nearly the same colour.

When the long types of Chinese cabbages are presented with cut leaves the packages must contain only trimmed cabbages.

The visible part of the contents of the package must be representative of the entire contents.

7.2 Packaging

Chinese cabbages must be packed in such a way as to protect the produce properly.

The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed provided the printing or labelling has been done with non-toxic ink or glue.

Packages must be free of all foreign matter, such as loose leaves and/or parts of stalk.

8 Marking or labelling

8.1 Consumer packages

In addition to the requirements of ARS 56, the following specific provisions apply:

8.1.1 Nature of produce

If the produce is not visible from the outside, each package shall be labelled as to the name of the produce and may be labelled as to the name of the variety and/or commercial type.

8.2 Non-retail containers

Each package ² must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.

8.2.1 Identification

Name and address of exporter, packer and/or dispatcher. Identification code (optional). ³

¹ The Federal Republic of Germany has proposed a minimum weight of 300 g.

² Package units of produce prepacked for direct sale to the consumer shall not be subject to these marking provisions but shall conform to the national requirements. However, the markings referred to shall in any event be shown on the transport packaging containing such package units.

³ The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference "packer and/or dispatcher (or equivalent abbreviations)" has to be indicated in close connection with the code mark.

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8.2.2 Nature of produce

— "Chinese Cabbages" if the contents are not visible from the outside.

8.2.3 Origin of produce

Country of origin and optionally, district where grown, or national, regional or local place name.

8.2.4 Commercial specifications

- Class
- Size indicated by the weight of the lightest head
- Number of heads or weight.

8.2.5 Official control mark (optional)

9 Contaminants

9.1 Heavy metals

Chinese cabbages shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for this commodity. The current limits are as indicated below:

| Metal | Unit of measurement | Maximum limit | Test method |
|--------------|---------------------|---------------|----------------------|
| Lead (Pb) | mg/kg wet weight | 0.30 | ISO 6633 (AAS) |
| Cadmium (Cd) | mg/kg wet weight | 0.050 | ISO 6561-1 or 6561-2 |

9.2 Pesticide residues

Chinese cabbages shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

10 Hygiene

10.1 It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of ARS 53, CAC/RCP 53, and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

10.2 The produce should comply with any microbiological criteria established in accordance with CAC/GL 21.



Chinese cabbages



Chinese cabbages in farm



Cabbage Chinese Taisai 'Bok Choy'



Chinese cabbages



Growing Chinese cabbage

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